

CLAIMS

1. A managing apparatus for managing an assisting work to assist a substrate-related-operation performing system comprising a plurality of substrate-related-operation performing machines each of which performs a substrate-related operation that is related to a circuit substrate, the assisting work being carried out, as needed, when the substrate-related-operation performing system is operated, the managing apparatus assigning, each time a need to carry out the assisting work occurs, the assisting work to one of a plurality of workers,

the managing apparatus being characterized by comprising
an assisting-work occurrence information obtaining portion which obtains assisting-work occurrence information which is related to occurrence of a need to carry out at least one assisting work; and

a worker determining portion which determines one of the workers who is to carry out said at least one assisting work as at least one objective work, so that said at least one objective work is assigned to said one worker.

2. The managing apparatus according to claim 1, wherein the worker determining portion comprises a pre-set-worker-information-dependent determining portion which determines said one worker based on a plurality of sets of pre-set worker information that are pre-set for the workers, respectively.

3. The managing apparatus according to claim 2, wherein the pre-set-worker-information-dependent determining portion determines said one worker based on the sets of pre-set worker information each set of which comprises at least one of a worker skill level and a responsibility section of a corresponding one of the workers.

4. The managing apparatus according to any of claims 1 through 3, further comprising a current-worker-information obtaining portion which obtains a plurality of sets of current worker information representing respective current states of the workers,

wherein the worker determining portion comprises a

current-worker-information-dependent determining portion which determines said one worker based on the obtained sets of current worker information.

5. The managing apparatus according to claim 4, wherein the current-worker-information-dependent determining portion determines said one worker based on the sets of current worker information each set of which comprises at least one of a working state, a position around the substrate-related-operation performing system, an amount of work, and an assignment state of a corresponding one of the workers.

6. The managing apparatus according to any of claims 1 through 5, wherein the worker determining portion comprises a worker-intention-dependent determining portion which determines said one worker based on an intention of said one worker.

7. The managing apparatus according to claim 6, wherein the worker-intention-dependent determining portion comprises

a pending-work-related informing portion which informs each of at least one of the workers of said at least one objective work which has not been assigned, and

a worker-intention-information obtaining portion which obtains, from at least one of the at least one informed worker, at least one set of worker intention information representing the intention of said at least one worker about whether said at least one worker carries out said at least one objective work.

8. The managing apparatus according to claim 7, wherein the worker-intention-dependent determining portion further comprises a candidate selecting portion which selects, from the workers, at least one candidate who can carry out said at least one objective work, and

wherein the pending-work-related informing portion informs each of said at least one candidate selected by the candidate selecting portion, of said at least one objective work.

9. The managing apparatus according to any of claims 1

through 8, wherein the worker determining portion determines said one worker at a time determined based on a time when said at least one objective work is carried out.

10.The managing apparatus according to any of claims 1 through 9, wherein the assisting-work occurrence information obtaining portion obtains a plurality of sets of said assisting-work occurrence information which are related to a plurality of assisting works, respectively, wherein the worker determining portion determines, in an order of priority of the assisting works, the workers who carry out the assisting works, respectively.

11.The managing apparatus according to any of claims 1 through 10, wherein the assisting-work occurrence information obtaining portion obtains a plurality of sets of said assisting-work occurrence information which are related to a plurality of assisting works, respectively, wherein the worker determining portion comprises a related-work-related determining portion which determines, as a plurality of said objective works, a plurality of related works which are related to each other on carrying-out of the works, and determines said one worker who carries out the related works.

12.The managing apparatus according to any of claims 1 through 11, wherein the assisting-work occurrence information obtaining portion obtains a plurality of sets of said assisting-work occurrence information which are related to a plurality of assisting works, respectively, wherein the worker determining portion comprises a simultaneous-work-related determining portion which determines, as a plurality of said objective works, a plurality of simultaneous works which are preferred to be carried out simultaneously with each other, and determines the workers who carry out the simultaneous works, respectively.

13.The managing apparatus according to any of claims 1 through 12, further comprising an assigned-work-related informing portion which informs said one worker determined by the worker determining portion, of said at least one objective work assigned to said one worker.

14. The managing apparatus according to any of claims 1 through 13, further comprising a plurality of portable terminal devices which can be carried by the workers, respectively,

wherein the managing apparatus sends, and receives, information to, and from, the portable terminal devices carried by the workers.

15. A managing program for being implemented by a computer to manage an assisting work to assist a substrate-related-operation performing system comprising a plurality of substrate-related-operation performing machines each of which performs a substrate-related operation that is related to a circuit substrate, the assisting work being carried out, as needed, when the substrate-related-operation performing system is operated, the managing program assigning, each time a need to carry out the assisting work occurs, the assisting work to one of a plurality of workers,

the managing program being characterized by comprising
an assisting-work occurrence information obtaining step of obtaining assisting-work occurrence information which is related to occurrence of a need to carry out at least one assisting work; and

a worker determining step of determining one of the workers who is to carry out said at least one assisting work as at least one objective work, so that said at least one objective work is assigned to said one worker.

16. A recording medium on which the managing program according to claim 15 is recorded to be readable by a computer.